
# IT's WHAT'S ON THE STACK THAT MATTERS: Cloud Foundry

OpenStack summit at Vancouver BC (May 22nd 2015)

# Rags (@ragss)

- Rags (not to Riches) and work for EMC CODE (emccode.github.io)
- Middleware and Application programmer
- Architect and Evangelist
- Part time teaching at UML and writing at InfoQ
- Philosophy: It’s better to have an unanswered question than a unquestioned answer

# John (@bcferrycoder)

- Technology Evangelist at ActiveState (activestate.com)
- Previously Developer and Architect at Sun, NeXT, handful of startups
- Focus on PaaS, Microservices, Containerization, Continuous Delivery
- Philosophy: Use the right tool for the job

# Agenda

- Brief Overview of Cloud Foundry
- Hands-On Labs logistics
- Resources and Summary

# How are things the same?

| | OpenStack & Cloud Foundry |
|---|---|
| License | Apache v2.0 |
| Community | Vendors, Users, and Developers |
| Architecture | API-based services and message-passing |

# How are things different?

| | OpenStack | Cloud Foundry |
|---|---|---|
| Language | Python | Go and Ruby |
| Release Cycle | 6 months, integrated | 2 weeks, parallel |
| Governance | Dedicated Foundation | Linux Foundation project |
| Installation tools | Various | BOSH or Juju |
| Communication Hub | IRC (#openstack-dev) | Mailing lists |
| Source code & review | Gerritt & Private Git | GitHub & pull requests |
| Adoption | Mostly OSS trials and dev/test environments | Mostly commercial production deployments |

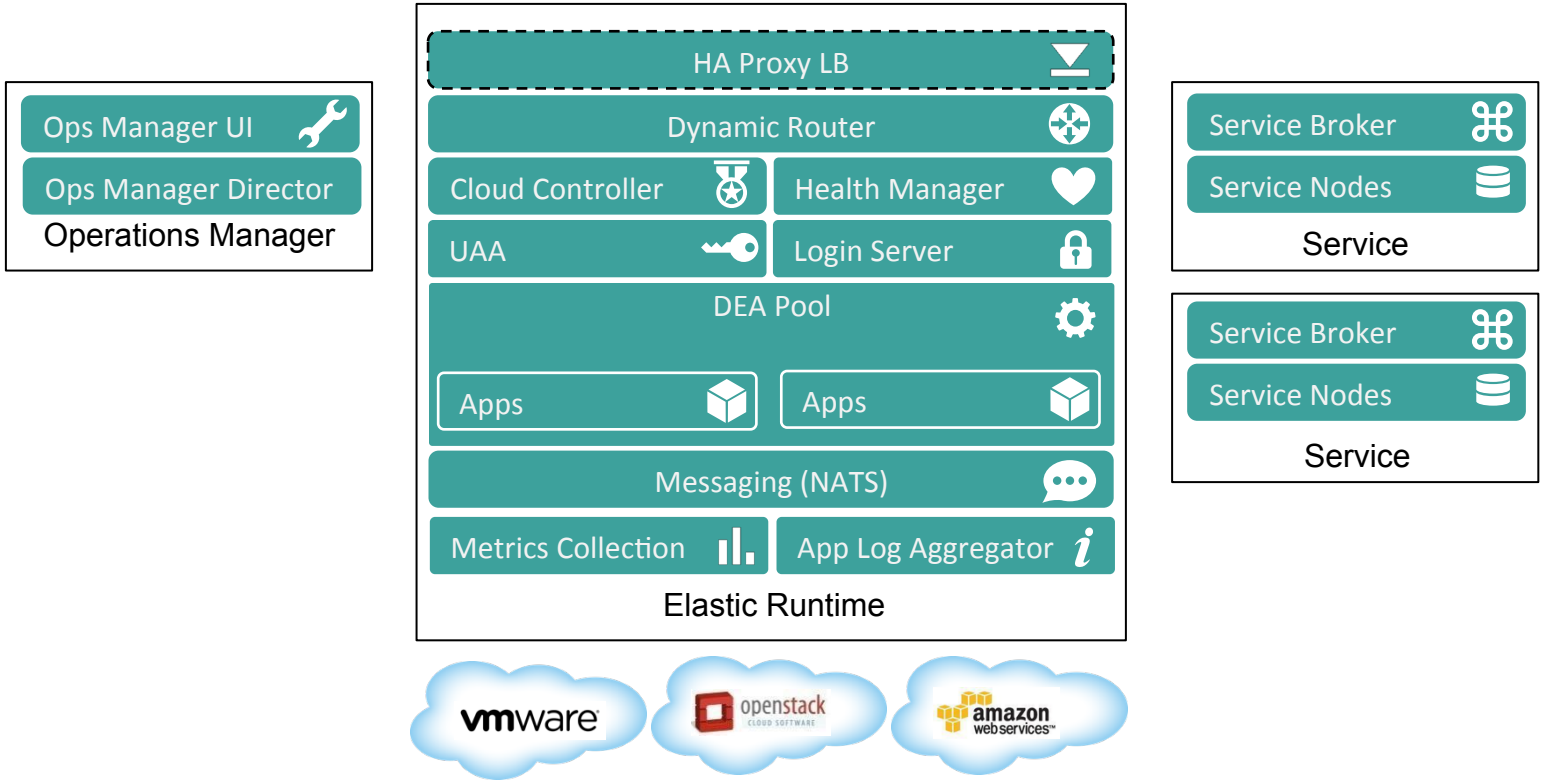
# Cloud Foundry

## Enterprise Capabilities At A Glance

| | | |
|---|---|---|
| Automatic Middleware Configuration  | Application Containerization  | Simple Service Binding  |
| Automatic IaaS Provisioning  | High Availability and Scaling  | Integrated Services: Data, Mobile Platform  |
| Monitoring, Logs and Performance as-a-Service  | Network Isolation and Security Groups  | Roles and Policy Management  |

## Running on top of

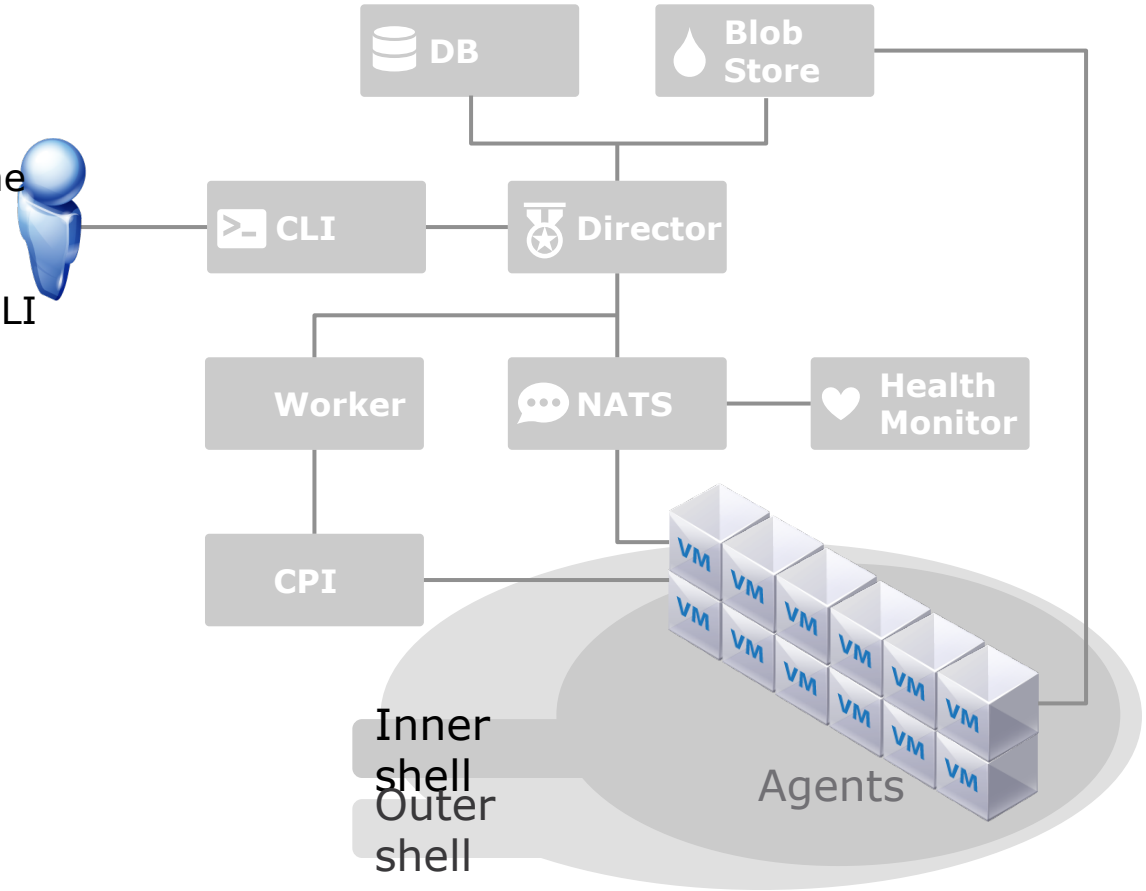
# Runtime Architecture



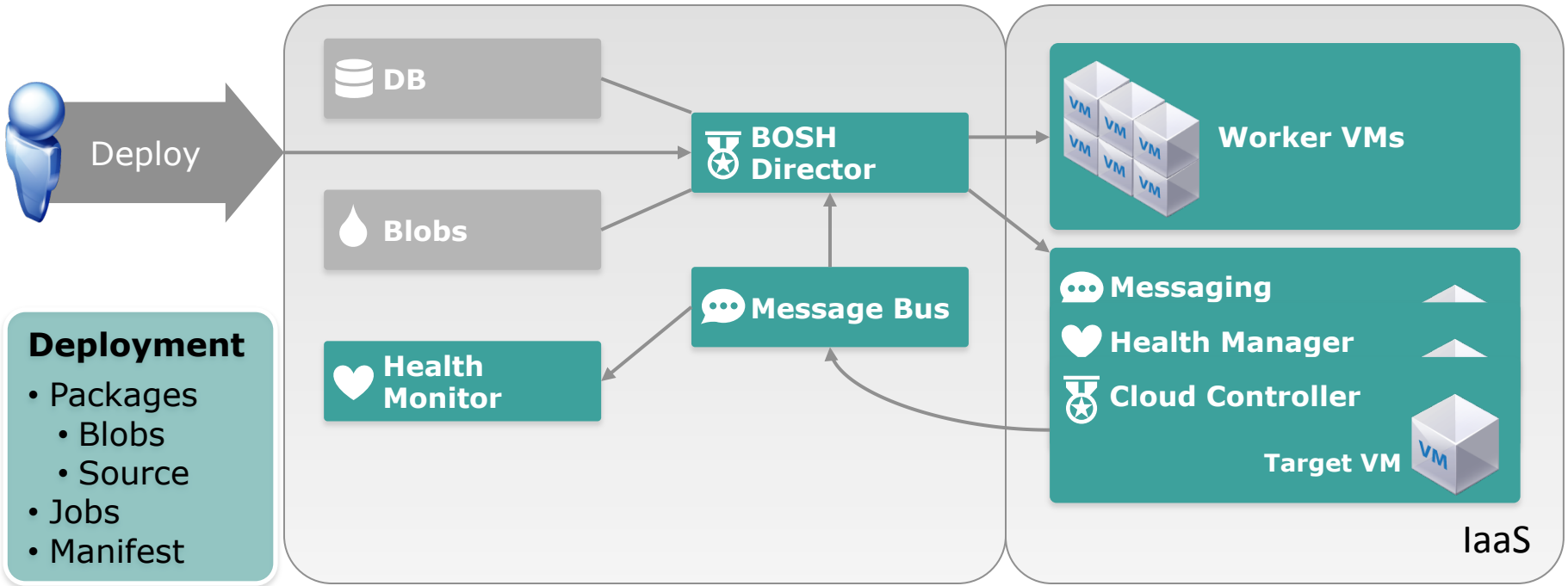
# BOSH

When you deploy Cloud Foundry the following sequence of steps occur:

1. Target a BOSH director using CLI
2. Upload a Stemcell
3. Get a Release from a repo
4. Create a deployment manifest
5. BOSH Deploy Cloud Foundry:
    - Prepare deployment
    - Compile packages
    - Create and bind VMs
    - Pull in job configurations
    - Create needed job instances – this is where things get pushed live (canary style)



# Behind the Scenes - BOSH

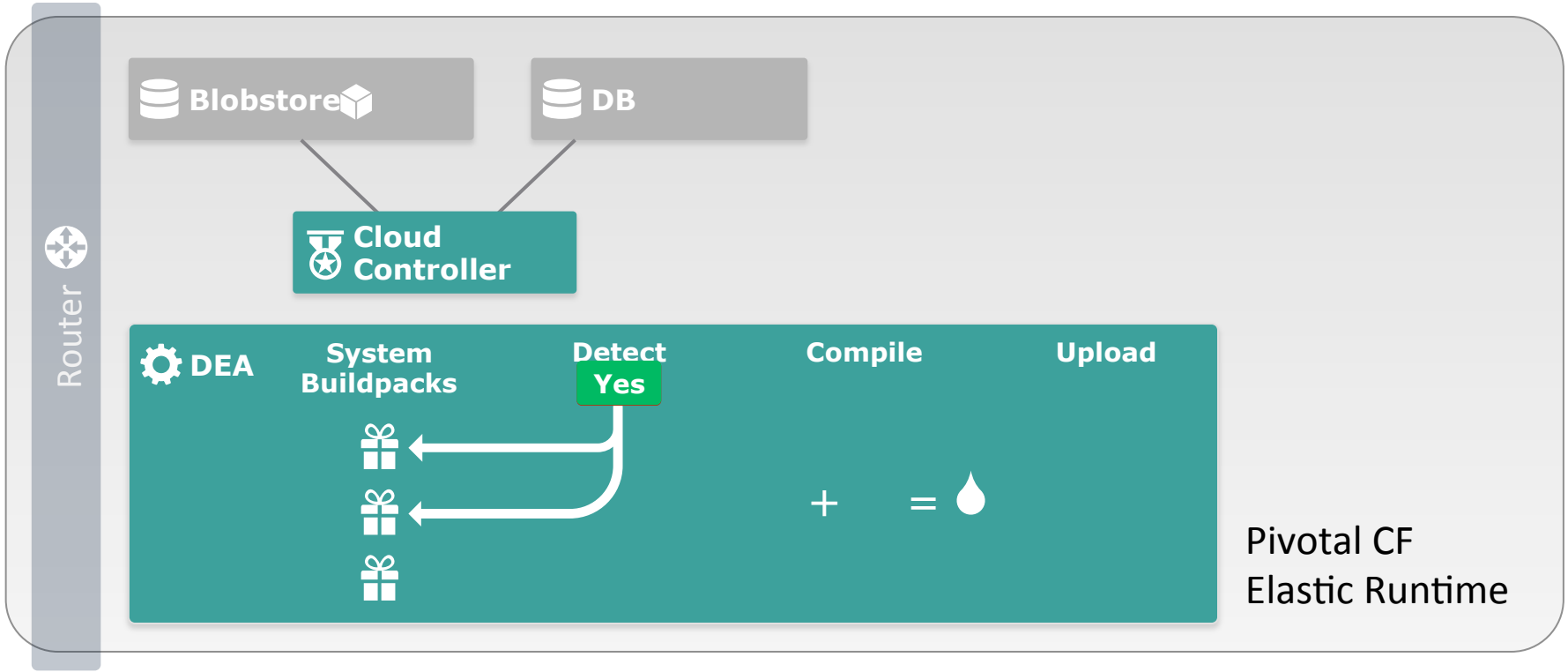



**Deployment**

- Packages
  - Blobs
  - Source
- Jobs
- Manifest

App Ops

# Stage an Application

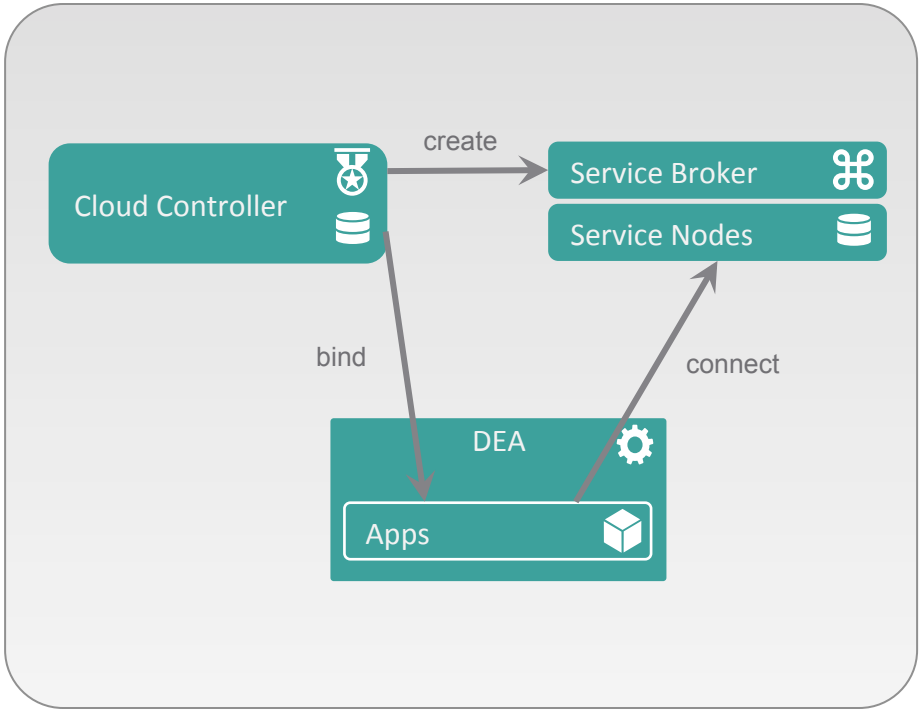


# Managed Services

Service Brokers generate connection details and credentials for managed services

CC encrypts and stores credentials in CCDB

Credentials are exposed to bound applications via VCAP_SERVICES environment variable



# Managed Services

VCAP_SERVICES environment variable is visible only to members of the org and space containing the service instance

```
VCAP_SERVICES=" {
 "p-mysql": [
  {
   "name": "music-db",
   "label": "p-mysql",
   "tags": [ "mysql", "relational" ],
   "plan": "100mb-dev",
   "credentials": {
    "hostname": "192.168.1.147",
    "port": 3306,
    "name": "cf_aceae021_7f27_48db_9844_d7c151f29195",
    "username": "Tr12ZI4hPu4OPJPY",
    "password": "fuTWBqpGeyvv0qge",
    "uri": "mysql://Tr12ZI4hPu4OPJPY:fuTWBqpGeyvv0qge@192.168.1.147:3306/
                cf_aceae021_7f27_48db_9844_d7c151f29195?reconnect=true"
   }
  }
 ]
} "
```

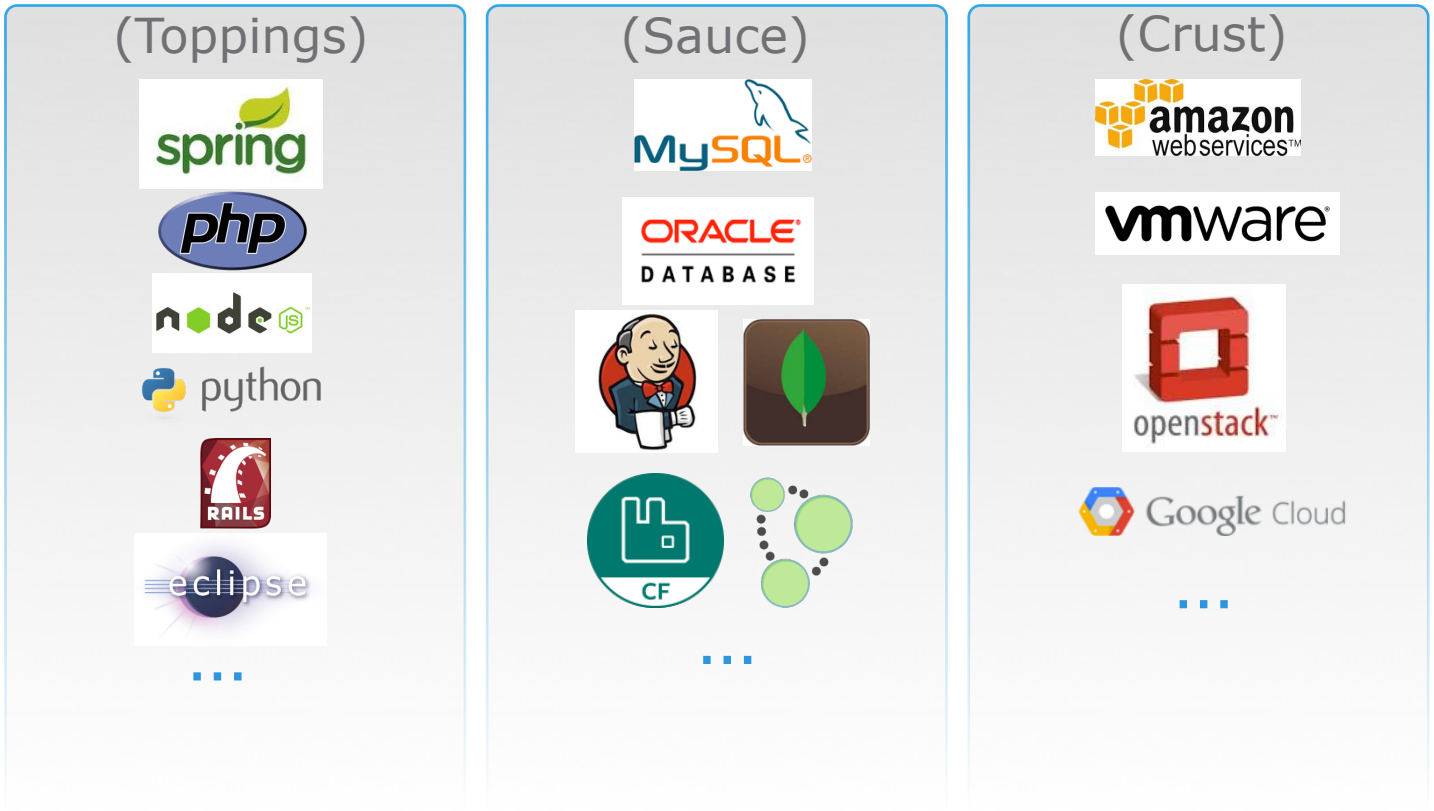
# Installing Cloud Foundry on OpenStack

- Install MicroBOSH
- Deploy BOSH with MicroBOSH
- Deploy Cloud Foundry with BOSH

https://github.com/emccode/ossummit2015HOL

# Resources and Summary

# Language, Service and IaaS Agnostic



# Call for Action

- Sign up for the CF and BOSH mailing lists.
- Install Cloud Foundry on OpenStack (blog out soon)
- Learn how to write 12-factor applications.
- Free workshop and roadshows.
- CFAD!

# Resources


https://run.pivotal.io/


https://ace.ng.bluemix.net/

https://express.mirantis.com/


http://www.activestate.com/stackato/


http://www.hpcloud.com/products-services/application-paas

https://github.com/emccode/ossummit2015HOL